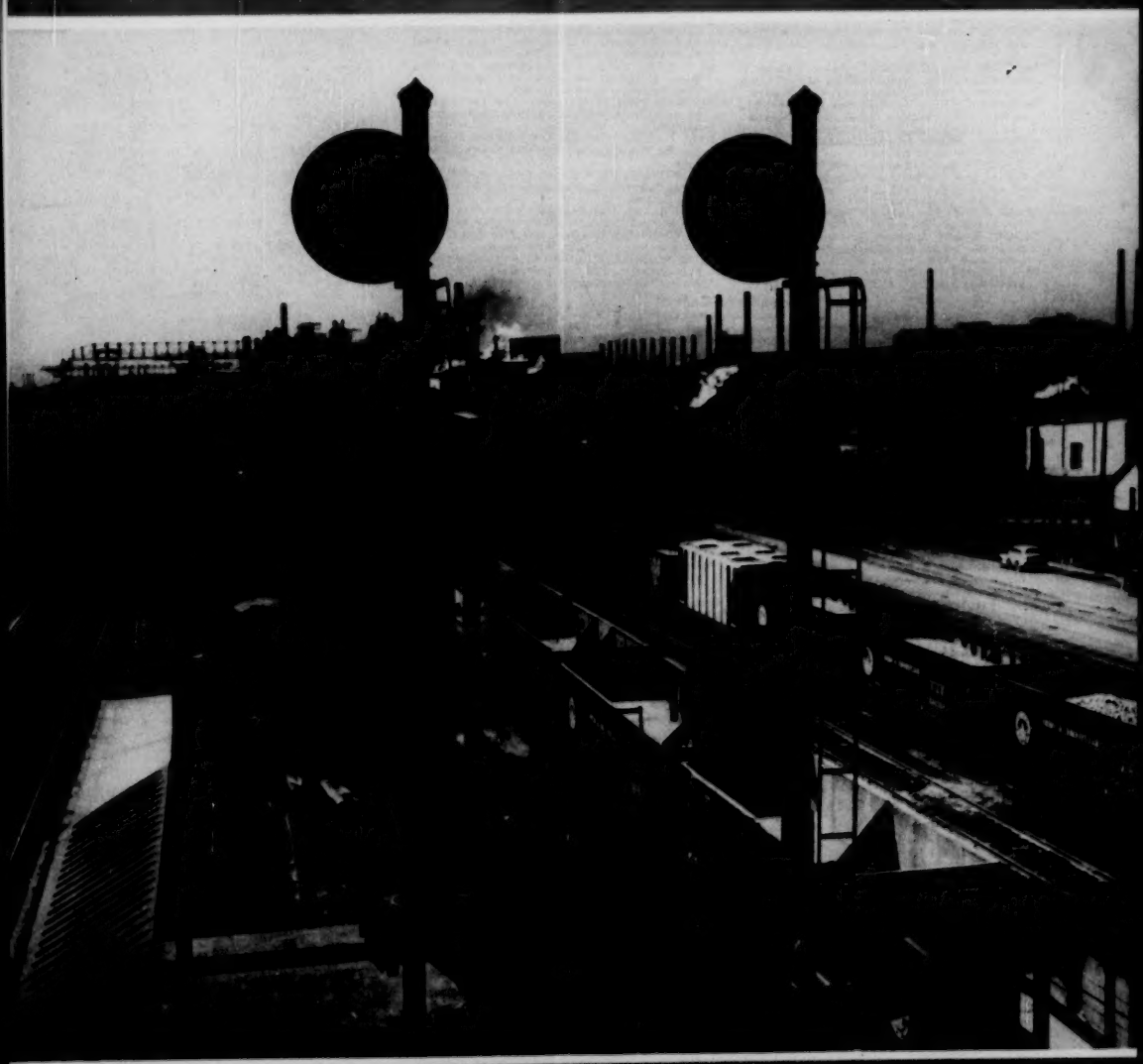
Standardization

News Magazine of the American Standards Association, Incorporated



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Company Members—More than 2000 companies hold membership either directly or by group arrangement through their respective trade associations.

Marginal Notes

A Timely Contribution—

The 119 deaths at the West Frankfort, Illinois, mine last month are a sad commentary on the timeliness of the article "Coal Mines' Guardian" in this issue. All the reasons for this tragic disaster may never be known. Preliminary investigations have indicated that "squeezing" in the mine walls resulted in dangerous accumulations of explosive mine gases. If the accident did happen because accumulations of gases were exploded, it may now be impossible to determine what caused the ignition that touched off the explosion.

Whatever the explanation may be, however, the terrible loss cannot help but emphasize the contribution to mine safety offered by the new American Standard Safety Code for Electrical Equipment in Coal Mines.

The standard is not yet published. When it is available, it will provide an up-to-date and complete guide to safe installation and use of electrical equipment in coal mines. Mine owner and worker representatives working together with other groups concerned with industrial safety, with equipment manufacturers and with government organizations charged with the responsibility of mine inspections developed the standard.

All will benefit if they work together again to put it to use.

A Salute to the Past and a Glance to the Future—

On a nationwide and international level during 1951 standardization touched on a broad range of activities, some of them new and original, some representing a new approach to old problems. They varied from "Acoustics, measurements, terminology" to "Ventilation equipment" and "Welding operations, safety"—not to mention "Savings from standardization" and "Benefits of standards in purchasing." (See Index to STANDARDIZATION, Volume 22, January-

December 1951, published as Part 2 of this issue.)

1952 already promises even more interesting new activities. Scheduled for publication in this magazine in coming months are articles on methods of determining quality of surface finishes; on ball and roller bearings; on the experience of Dutch companies with the use of standards; and on new government policies. The international meetings to be held in New York in June and the National Standardization Conference in September will open many new and interesting subjects for discussion. To be held in conjunction with the Centennial of Engineering in Chicago, the Conference will demonstrate the relationship of standardization to engineering in general. Of special interest to all concerned with standardization will be the Fiftieth Anniversary celebration of the American Society for Testing Materials in June. Here, standardization will rightly have an outstanding role, as it had during ASTM's 50 years of national and international activities.

Our Front Cover

Nerve center of Pittsburgh's production operations are railroad yards such as those, and many others like them. Coal and iron ore from all mining districts in the country is distributed by rail to the steel mills and manufacturng plants of this key production city. Prevention of lost-time accidents in coal mines through use of all known safety precautions is one means of keeping urgently needed fuel flowing to Pittsburgh's factories. (See page 5). Photo—Standard Oil Company (N. J.).

Opinions expressed by authors in STANDARDIZATION *are not necessarily those of the American Standards Association.*

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Standardization is dynamic, not static. It means not to stand still, but to move forward together.

In Two Parts—Part 1

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ASA

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Cyril Ainsworth

Cyril Ainsworth, ASA's technical director and assistant secretary, has been elected fifth president of the American Museum of Safety—oldest safety organization in the U.S. Mr Ainsworth is a U.S. member of the International Accident Prevention Committee, International Labor Office, and is secretary and a director of the Greater New York Safety Council. He took an active part in developing the plan that led to organization of the Council. Mr Ainsworth joined ASA's staff in 1930 to take charge of its work on safety standards; became assistant secretary in 1931; and technical director in 1946. He has just been named by the International Labor Organization as one of a panel of experts on safety at a labor relation seminar in Calcutta, India (see page 25).

The American Museum of Safety originated in 1906. Among the accomplishments attributed to it are organization of the first International Exposition of Safety and Sanitation, December 1913; encouragement of periodic health examinations; prevention of accidents due to fireworks; and initiation of courses for safety engineers. Financial grants, scholarships, and underwriting provided by the Museum stimulate special studies on accident prevention as well as programs to prevent accidents and determine their causes. Each year the Museum presents the Harriman Medals for railroad safety and the Arthur J. Williams Memorial Award for an outstanding contribution to the conservation of human life.

Coal Mines' Safeguard

A New Standard Electrical Code for Coal Mines

By E. J. Gleim

Electrical Engineer, Bureau of Mines, Experiment Station, Pittsburgh, Pa.

SHOULD bare power wires be permitted to rest against wood frames or on coal in a mine? At what height above the rail must trolley wires be guarded in protecting men against contact hazards? Should power circuits entering a mine have lightning protection? What special controls should be provided for belt-conveyor systems?

These and many other questions bearing on safe electrical installations in coal mines are answered in the new standard recently approved by the American Standards Association under the title "American Standard Safety Code for Installing and Using Electrical Equipment in and About Coal Mines."

This code, sponsored jointly by the American Mining Congress and the Bureau of Mines, United States Department of the Interior, represents the combined efforts and judgment of the many interests serving the coal-mining industry. It is a revision of a former American Standard published in 1926 by the Bureau of Mines as Technical Paper 402 under the title, "Safety Rules for Installing and Using Electrical Equipment in Coal Mines."

When it is understood that comprehensive codes such as the National Electrical Code and the National Electrical Safety Code have been in existence for many years, the necessity for another electrical code might be questioned. But, unlike most industries, the mining of coal presents an ever-changing problem to the electrical engineer.

In many a manufacturing plant, machines and the electrical circuits to them frequently remain fixed in position throughout the life of that plant.

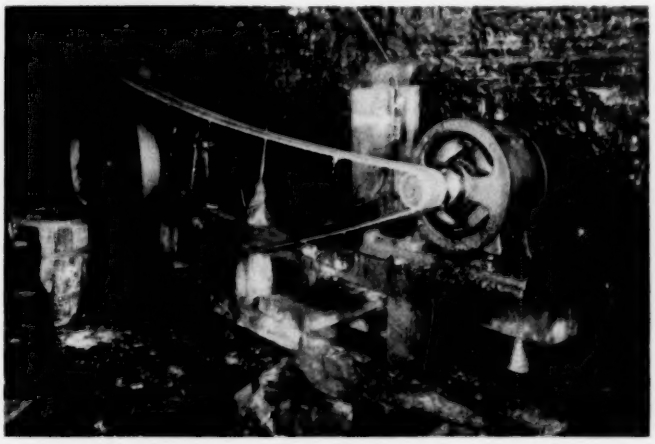
In a modern coal mine, however, as the coal is removed, the machines that produce the coal are constantly moving to new locations. Thus, with ever-shifting load centers it becomes necessary to extend the feeder circuits for these machines; to extend trolley circuits, if haulage is by electric locomotives; and to move rectifier, transformer, or other substations so that power sources will be nearer the shifting load centers. Added to this problem is that of protecting the circuits against mechanical damage by roof falls, derailments, and the like, also the problem of overcurrent protection for circuits and machines that usually have widely fluctuating loads.

Thus, it may be seen that the electrical rules that may be followed in making safe factory installations are not necessarily applicable to installations in mines.

When the Bureau of Mines was established in 1910, electrical operation of underground machines (in other words, mechanization of coal mines) was on a very limited basis. But, even at that early date, it was recognized that electric circuits and equipment presented hazards for which safeguards must be provided. This was evident in the act of Congress which, in establishing the Bureau, directed that it "make diligent investigation of the methods of mining, especially in relation to the safety of miners, and the appliances best adapted to prevent accidents, the possible improvement of conditions under which mining operations are carried, ... the use of explosives and electricity, the prevention of accidents, and other inquiries and technologic investigations pertinent to said industries, and from time to time make such public reports of the work, investigations, and information obtained as the Secretary of said department may direct, with the recommendations of such bureau."

Fig. 1 A pump installation of 35 years ago shows a number of hazardous conditions: Fire hazards due to oil-soaked timber and other flammable materials; possibility of shock from contact with exposed starting switch; possible injury if clothes catch in unguarded belt between motor and pump.

Bureau of Mines, U.S. Dept of Interior



Early installations of electrically driven equipment in coal mines had no accepted rules for guidance or laws to require compliance with established safe practices. Hence, it is not at all surprising that these installations lacked many of the safety features now considered essential for adequate protection of men and property underground. An example of fire and other hazards in a pump installation of 35 years ago is given in figure 1. Figure 2 shows a trolley wire that is improperly supported, and a trolley wire that should be guarded for protecting men against shock is shown in figure 3. In figure 4, a power cable is seen without the required insulation where it passes through a wooden frame. A careless switch installation under an unguarded trolley wire is illustrated in figure 5. Figure 6 shows a modern fireproof pumping station in an up-to-date coal mine.

Bureau of Mines, U.S. Dept of Interior

Fig. 2 Trolley wire hangers not properly spaced permit wire to touch combustible material. Unguarded trolley wires and cables are still to be found in some modern mines today.

Bureau of Mines, U.S. Dept of Interior

Fig. 3 Above: Trolley wire should be guarded to protect workmen against shock. Fig. 4 Below: A power cable without insulation where it passes through wooden frame is shown here.

Bureau of Mines, U. S. Dept of Interior

It is of interest, then, to note that among the first activities of the Bureau of Mines was the drafting of an outline for a code of regulations covering electricity in mines. In the First Annual Report of the Director of the Bureau of Mines to the Secretary of the Interior for the Fiscal Year ended June 30, 1911, the following statement appears:

"An outline for a code of regulations, modeled after the English code for the use of electricity in mines, was drawn up and used as the basis of a report by a committee of the American Mining Congress. The report of this committee was adopted almost verbatim by the Pennsylvania Legislature and has become a law of that State."

Five years later the Bureau issued Technical Paper 138.[2] This paper was superseded in 1926 by Technical Paper 402,[3] which, as previously stated, was sponsored jointly by the Bureau of Mines and the American Mining Congress. After a lapse of four more years, the Bureau issued another set of rules, which were published in Information Circular 6269.[4]

When mechanization of coal mines proceeded at an accelerated pace, the development of new equipment and new methods of mining made it apparent that existing rules no longer were adequate. Accordingly, in 1940, a revision of Technical Paper 402 was undertaken. Although this reached the stage of a preliminary draft, World War II halted further work.

Late in 1947 the revision was actively resumed, and another preliminary draft was prepared by Bureau of Mines engineers. Soon thereafter, the American Mining Congress agreed to continue as co-sponsor for a new code to be prepared for adoption as an American Standard. This draft was studied carefully by the Power Committee of that organization and revised by a subcommittee after due consideration was given to comments and suggestions from organizations such as the National Electrical Manufacturers Association. Finally, in February 1949 a revision agreed upon by the sponsors was forwarded to the American Standards Association for consideration.

Sectional Committee M2 was appointed that same month by the Association to consider drafts of the proposed revisions of the previous standard. This committee comprised representatives of the following organizations:

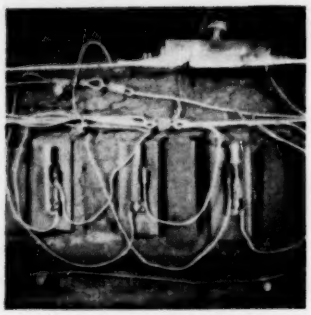
American Institute of Electrical Engineers, American Institute of Mining and Metallurgical Engineers, American Mining Congress, Association of Casualty and Surety Companies, Coal Mining Institute of America, Mine Inspectors Institute of America, National Bureau of Standards, National Coal Association, National Electrical Manufacturers Association, National Safety Council, United States Bureau of Mines, and United Mine Workers of America.

This committee met on March 24, 1949, and gave general consideration to the form and content of the standard, and a subcommittee chosen from the group was assigned the task of preparing a draft based on written and oral comments received. The new draft by correspondence and ad-

[2] Clark, H. H., and Means, C. M., Suggested Safety Rules for Installing and Using Electrical Equipment in Bituminous Coal Mines: Bureau of Mines Tech. Paper 138, 1916, 36 pp.

[3] U. S. Bureau of Mines and American Mining Congress, Safety Rules for Installing and Using Electrical Equipment in Coal Mines: Bureau of Mines Tech. Paper 402, 1926, 21 pp.

[4] Ilsley, L. C., and Means, C. M., Suggested Safety Rules for Installing and Using Electrical Equipment in Coal Mines: Bureau of Mines Inf. Cir. 6269, 1930, 22 pp.



Bureau of Mines, U.S. Dept of Interior

Fig. 5 Careless switch installation under an unguarded trolley wire is both a shock hazard and fire hazard.

Bureau of Mines, U.S. Dept of Interior

Fig. 6 A modern fireproof pumping station used in an up-to-date mine.

ditional meetings was further revised and ultimately in September 1951 was formally adopted as an American Standard.

The new code has as its objective the setting up of proper safeguards for reducing fire, explosion, electric shock, and other hazards in and about coal mines by indicating the steps necessary in the selection, installation, operation, inspection, and maintenance of electrical equipment and circuits. It is intended to cover surface as well as underground installations at both anthracite and bituminous-coal mines but not at strip-mining operations. It does not apply to buildings and installations not directly connected with the mining operations, since such buildings and installations generally can be considered under the National Electrical Code.

As a further objective, the code was designed to give the mine electrician and mining electrical engineer an up-to-date set of concise rules in one volume that would be easy to understand and practical to follow.

Interesting Sidelights

THE one country in the world that can produce more coal than it needs for its own use is the United States. This is due to technological progress made by the coal mining industry during the past few years. A. C. Hardy and D. R. Mitchell, writing in *Mining Engineering*, February 1951, report that rising production costs have spurred the industry to install labor-saving machinery that has increased the output of coal from an average of approximately 35 tons per man per day to an average of 65 tons per man per day.

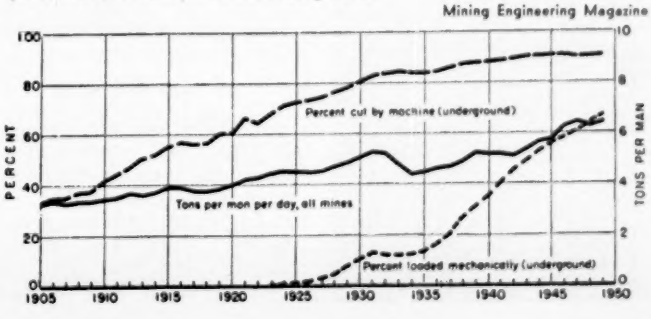
"Continuous mining" is the technological development which promises greatest increase in output with lowered costs. This is use of mechanical loading and conveying equipment, synchronized with mechanical cutting equipment—the coal being cut, loaded, and carried to the surface in a continuous stream. Where seam conditions permit its use, appreciable over-all cost reductions can be obtained. Mechanized conveying and loading equipment is very new and this type of continuous operation has only recently begun to come into use.

Mechanization of coal mines has developed rapidly since 1940, however. In that year only 32.1 per cent of bituminous coal mined underground was mechanically loaded; estimates for 1950 indicate that this percentage had increased to 53 percent. The accompanying table shows the rapid rise from 1925 to 1950 in percentage of coal mechanically loaded underground, as well as the rise in percentage cut by machine and in the output of tons per man per day.

To operate this mechanical mining equipment, greater amounts of electrical power are used each year. Trolley and feeder circuits have had to be extended; consequently greater lengths of wire and cable are being exposed to damage from roof falls. Each machine and each foot of wire added means that much more to be inspected and maintained in safe condition. In a gassy mine, particularly, this means constant vigilance with careful application of safety standards to prevent the spark that might spell disaster.

NOTE: Mr Hardy is chief engineer, Appalachian Coals, Inc, Cincinnati, Ohio, and in 1950 served as chairman of the Coal Division, American Institute of Mining and Metallurgical Engineers. Mr Mitchell is head of the Department of Engineering, Pennsylvania State College. He is secretary of the AIME Coal Division.

This chart, illustrating the sharp increase in mechanization of coal mines and consequent rapid rise in output of coal, points to the reason why more and more electrical power is used in coal mines each year. Increasing acceptance of the continuous mining principle is one reason for the sharp rise in percent of coal mechanically loaded underground. As illustrated here, the number of tons of coal mined per man per day has shown a steady rise, along with the percent of coal cut by machine underground.

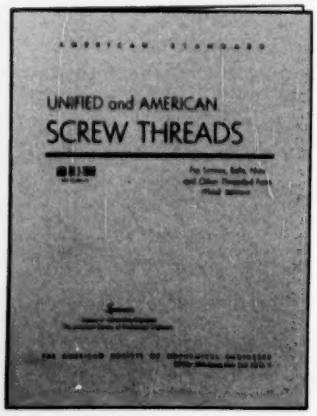


1/2″-13 Recognized as Unified Screw Thread

THE third printing of the American Standard, Unified and American Screw Threads (for Screws, Bolts, Nuts, and Other Threaded Parts) has just been issued. Made necessary by the fact that copies of the second printing are no longer available, publication of the third printing has presented an opportunity for recording a change in the Unified ½-in. coarse thread from ½″-12 to ½″-13, as well as for correcting typographical errors. The change in the ½-in. thread was decided upon recently as a result of agreement between British and Americans. Accordingly, the ½″-13 thread is now printed in bold face type in the table of coarse threads, indicating it is the recognized Unified thread. The ½″-12 has been eliminated from this table, and is now listed only as an American Standard special thread.

The ½-inch Coarse Thread

At the American-British-Canadian Conference on Unification of Engineering Standards, held in 1945 in Ottawa, the ½″-12 coarse thread was adopted as a Unified thread as a concession to British practice. (The ½-in. British Standard Whiteworth Thread had 12 threads to the inch.)



Since that time, however, American industry has found it to be practically impossible to change from the generally used ½″-13 coarse thread to the ½″-12. The difficulties involved in such a change in normal times have been increased by the renewed period of war production. In 1950, realizing the importance of this situation, the British suggested informally that the pitch of the Unified ½-in. coarse thread again be considered. This has led to the formal adoption of the ½″-13 coarse thread on both sides of the water, and, accordingly, to the change in listing the Unified ½-in. coarse thread in both British and American Standards. The first and second printings of B1.1-1949 listed the ½″-13 coarse thread as an American Standard thread, and the ½″-12 as the Unified thread. The only change in the third printing, therefore, is that the ½″-13 thread is now printed in bold face, instead of light face type, and the ½″-12 thread has been shifted to the tables of special threads.

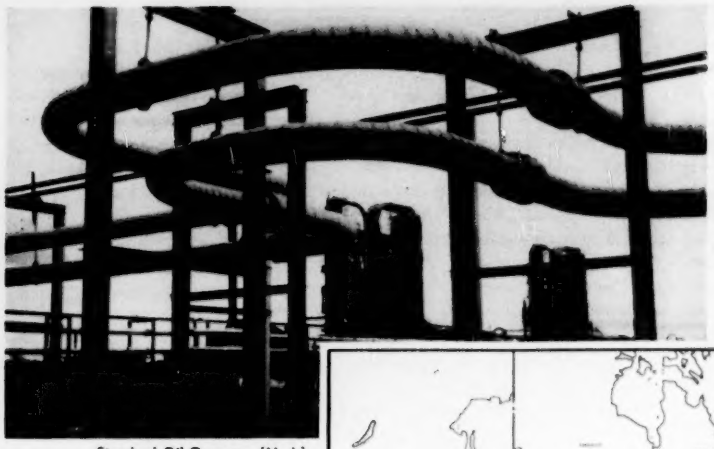
The 1-inch Fine Thread

The Unified 1″-12 fine thread has also come up for discussion during the last few years. In the former British Standard Whiteworth series, the 1-in. fine thread had 10 threads per inch. The previous American Standard (B1.1-1935) listed the 1-inch fine thread with 14 threads per inch. The Unified 1″-12 fine thread, therefore, represents a departure from previously established American and British practices. Consideration has been given to changing the Unified 1-inch fine thread from 1″-12 to 1″-14, since here, again, there is no indication that American industry will generally adopt the 1″-12 fine thread. The situation has not seemed important enough, however, to justify a change in the Unified fine thread series. As a result, the Unified 1″-12 fine thread has been maintained in the third printing of B1.1-1949 and is again listed in bold face type. The American Standard 1″-14 fine thread is again listed in light face type.

Small Thread Sizes

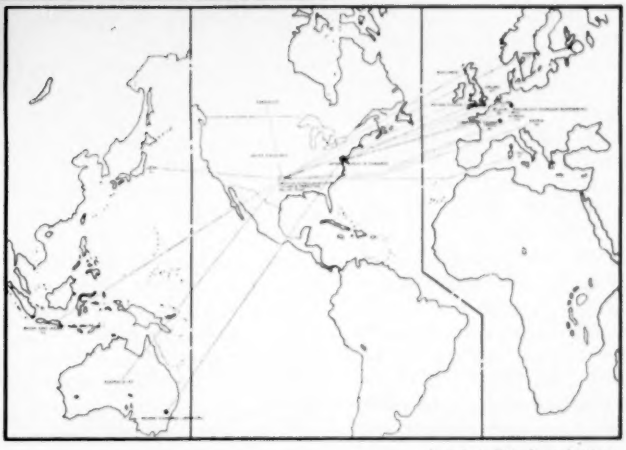
Agreement has also been reached by the United States, the United Kingdom, and Canada on adoption of five threads in nominal sizes below ¼ in. as Unified threads for certain limited applications, such as the attachment of instruments to panels. These threads are the American numbered sizes 4-40; 6-32; 8-32; 10-24; and 10-32, with preference to 10-32 over 10-24. Choice of the screws used for the internal assembly of each instrument unit is left free. Therefore, in assembling the instrument itself, American industry can use the American Standard numbered sizes whereas British industry is free to use the British Association (BA) threads, already widely used in the UK. However, the unification of threads for attaching instruments to panels will make it possible to connect an instrument of any manufacturer to equipment of any other manufacturer (British, American, or Canadian) interchangeably.

Final agreement on the adoption of the five thread sizes below ¼ in. was reached too late to be mentioned in the third printing of B1.1-1949. However, a loose sheet addendum is being enclosed in each copy of the new issue. This lists the five small thread sizes and states that in future printings of the standard these sizes will be listed in bold face. The symbols NC or NF, as applicable, will be retained.



Standard Oil Company (N. J.)

A petroleum pipeline and stills at the Port Jerome refinery, France



American Petroleum Institute

Manufacturers authorized to use the API monogram, indicating their products meet API standards, are located in all parts of the world.

API Program Reflects World Problems

THE strategic and economic importance of petroleum is bringing about greater activity in drilling and production than in any other period up to this time. This intense activity is reflected in widespread participation in the American Petroleum Institute's standardization program by organizations in all parts of the world, C. A. Young, Director of the API Division of Production told the Conference of Executives of Member-Bodies of the American Standards Association at the National Standardization Conference October 23, 1951. The value of products made annually to API standards is some $500,000,000, not taking into account material manufactured and distributed abroad.

Component parts of a drilling rig can be purchased from manufacturers in 13 countries other than the USA itself. These parts can be assembled at some distant point and there used to drill an oil well. Pipe manufactured in other countries interchanges perfectly with the American product, Mr Young declared. In the present shortage of steel in this country, several thousand tons of tubular goods made in England, Germany, Belgium, and France have been imported into the United States and are being used in our domestic drilling operations.

Because the Army recently indicated a need for more complete interchangeability of component parts of storage tanks, API has worked with the Armed Services in developing standards so that today storage tanks for either the Armed Forces or domestic use are identical.

Mr Young described the API standardization program for maintaining interchangeability of oil-field equipment as follows:

Pipe, in the form of casing, tubing, and drill pipe, is a vital item in drilling for oil and gas. These tubular

products are threaded with the 60-deg V-thread, both roots and crests being rounded. Threaded connections on accessory equipment in the drill stem, such as tool-joints, drill collars, and tool bits, utilize a coarse pitch, steeply tapered thread having a truncated 60-deg thread form.

Prior to API standardization there was no dependable interchangeability between these important connections of different manufacture. The resulting chaos on drilling tool connections was solved by the adoption of complete specifications on a selected list of sizes of threads, including specifications on master gages.

The key to maintaining interchangeability on drilling tools is maintenance of accuracy of reference master gages owned by the various manufacturers. This was accomplished under the tutelage and guidance of the National Bureau of Standards. The keystone of the arch was a set of grand master drilling tool gages deposited with the Bureau, with supplementary secondary masters deposited with official testing agencies in the Eastern, Mid-Continent, and Pacific Coast regions of the United States, where manufacturers could test their master gages at stated intervals.

When gages are beyond stated interchange tolerances, they must be reconditioned. In that way, no manufacturer can depart from this official standard for any great period.

It can now be stated that every important threaded connection in use in the producing branch has been standardized.

An important part of this international development is the Institute's system of identifying products that meet its specifications. It has an official registered monogram, the use of which is granted to manufacturers under specified conditions. These conditions require a statement from the manufacturer detailing his qualifications and also an affidavit that the mongram will be used only on products which comply with a particular specification, and that material that does not comply will *not* be so marked. Compliance with API standards and marking privileges is entirely the responsibility of the manufacturer. Policing of compliance is done by the purchaser, either through commercial testing agencies or his own inspectors. There have been instances of non-compliance, which have been promptly rectified by the manufacturer, but there have been no cases of willful non-compliance.

When foreign manufacturers became interested in API standards, the problem of testing and maintaining their master gages arose. This was solved through the appointment of foreign official certifying agencies which are the counterparts, in their respective countries, of our National Bureau of Standards.

Before appointment, the foreign testing agency was required to calibrate a gage and report on its accuracy. The gage was then sent to the Bureau of Standards where it was again calibrated and the results of these two tests then compared. Where differences occurred, they were adjusted by correspondence until there was complete agreement on the accuracy of the equipment and methods of measurement used by both.

Today there are four such foreign testing agencies in Europe and Australia:

National Physical Laboratory,
Teddington, Middlesex, England.

Physikalisch-Technische Bundesanstalt,
Braunschweig, (West) Germany.

Laboratoire d'Essais du Conservatoire des Arts et Metiers,
Paris, France.

National Standards Laboratory,
Division of Metrology,
Chippendale, New South Wales, Australia.

A system of reports on gages owned by manufacturers has been adopted and pedigree records are maintained in Dallas on the accuracy of the master gages owned by each manufacturer who has been authorized to use the API monogram. It is through this system of master gages, official testing agencies, and systematic reports, that interchangeability is maintained on an international basis.

The use of the Institute's monogram is not confined to threaded connections. It is used on other products as well, for example, wire rope, derricks, mating pump parts, belting, steel chain and others.

A substantial number of API specifications are translated into German, French, and Italian. In the English-speaking countries, API specifications have been adopted by several of the national standards agencies or have been used as the basis for the promulgation of related standards in which the interchangeability provisions of API specifications have been preserved.

Cooperation with foreign national standards organizations is maintained through the interchange of committee reports, specifications, and other publications.

Standard Oil Company (N. J.)

A section of the Elk Basin, Wyoming, oil field. Interchangeability of drilling tools is maintained through accuracy of manufacturers' master gages.

Administrative Standards in Business and Industry

by L. M. Dalcher

Mr. Dalcher is Superintendent of Standards and Publications, Fairbanks, Morse & Company, Beloit, Wisconsin. This paper was presented at the Company Member Conference session of the National Standardization Conference, New York, October 23, 1951.

IN our company we have found it useful to distinguish between "technical" and "administrative" standards. By technical standards we mean our standards for materials (like steel, copper, and rubber), our standards for common parts (such as bolts, nuts, and washers), and our engineering practice standards (such as our standards for design, drafting practice, and the like). We have had these technical standards for over 30 years.

We started using administrative standards only five years ago, and therefore we are still pretty much in the experimental stage. Nevertheless, the results to date have been very encouraging.

Nature of Administrative Standards

Administrative standards cover a broad range of subject matter—administration, accounting, engineering, inspection, personnel, production, and safety (Figure 1). There is no compelling reason why similar standards could not touch almost any phase of a company's operations.

Typical administrative standards contain a "scope" paragraph, a paragraph devoted to "policy," a paragraph on "summary of procedure," and another paragraph on "detailed procedure."

An administrative standard is a standard that outlines a practice, procedure, or policy to be followed by one or more units of an organization.

Purpose of Administrative Standards

Administrative standards have three main purposes:

First, they serve to coordinate the efforts of separate groups working on different phases of the same problem.

Second, they promote consistency in the handling of repeated functions.

Third, they serve to convert solved problems into routine procedures, thereby making the solution a matter of record and a future guide for all concerned.

How We Got Started

About five years ago we began to recognize that we were expecting miracles of our supervisors. Our foremen, department heads, and superintendents were supposed to have the "tools" they needed to do their job. They had an "Expense Account Book" issued by the accounting division. They had a "Material Control Manual" issued by the production division. They had a "Supervisor's Reference Book" issued by the personnel division. They had something on safety from the safety division, and a lot of miscellaneous instructions from other sources. Somehow the supervisor was expected to keep all of this material in order, including the corrections, additions, deletions, and revisions that were forever being sent to him. He was also expected to be able to find the right information when he needed it. And of course he was expected to run his unit, too.

In many cases new instruction material piled up awaiting a breathing spell that would enable the supervisor to put the material in proper order. Sometimes the new material was not even removed from the envelope in which it was received. All of this added up to one thing: The material we were furnishing to our supervisors—that was supposed to help them in doing their jobs—was not getting the results it should.

We decided that our basic problem was this:

Manual-type information was being sent to supervisors from a number of different sources. Each source had its own numbering system, its own format and editorial practice, its own indexing system, and its own distribution system.

Because of this, the position of the supervisor was needlessly difficult—from the standpoint of keeping the material he received up to date, and from the standpoint of locating a particular piece of informa-

Figure 1
Typical Administrative Standards

Standard Number	Title of Standard	Subject Classification
AD05.86	Organization Chart of Quality Control Division	Administration
AD23.3	Plant Security Regulations	
AD38.5	Overtime Authorization	
AD38.8	Sale of Merchandise to Employees	
AU04.2	Department Code Numbers	Accounting
AU04.3	Expense Code Numbers	
EN20.4	Engineering Change Procedure	Engineering
IN38.5	First-Piece Inspection of Production Tooling	Inspection
PE17.1	Hourly Rates for Shop and Foundry Occupations	Personnel
PE20.1	Job Descriptions of Hourly-Rated Shop and Foundry Occupations	
PE80.2	Enforcement of Employee Conduct Regulations	
PN56.8	Storage and Disposal of Obsolete Tools	Production
PN62.7	Substitution of Materials and Parts	
SA1.2	Accident Prevention Policy	Safety
SA44.8	Safety Rules for Procurement, Inspection, and Maintenance of Chain Lifting Devices	

Figure 2
Major Subdivisions of Fairbanks-Morse Standards

SECTION	SUBJECT
AD	ADMINISTRATION
AU	AUDITING & ACCOUNTING
EN	ENGINEERING
IN	INSPECTION
MS	MATERIALS & SUPPLIES
PE	PERSONNEL
PN	PRODUCTION
SA	SAFETY
SP	STANDARD PARTS
TE	TOOLS & EQUIPMENT

tion when he needed it. The information, when he did find it, was often not as simple to understand as it might have been.

Having decided what the problem was, we decided to standardize on standards. This procedure and policy information was to be written up as standards. Each of our supervisors would have his own standards book, to be used as his primary on-the-job reference just one book to look in; just one book to keep up to date; just one numbering system to become familiar with; just one index to refer to.

Relationship Between Technical and Administrative Standards

Next we had the problem of coordinating these administrative standards with our technical standards. How could the two be made to jibe?

The outcome was that we resolved to have just one system of standards. Figure 2 shows how our standards setup as a whole is organized. We have made no attempt to separate administrative from technical standards. The Administration Section contains administrative standards only. In some of the other sections, however, we have both technical and administrative standards. For example, in the Engineering Section, which contains mostly technical standards, we have a standard on "Engineering Change Procedure," a typical administrative standard. Thus all standards, both technical and administrative, are tied closely together under a single framework.

A common numbering system also ties all our standards together (Figure 3). We use a decimal numbering system. With this system it is possible to issue any number of new standards and insert them at any desired point in the book. At the present time a complete set of standards occupies two large volumes. Our binders are equipped with removable title inserts in the backbone. If we need to increase the number of volumes, it is a simple matter to change the title inserts and keep them up to date.

Framework for Administrative Standards

Administrative standards are in some ways individual to the company that uses them. At least they are much more individual, in general, than many types of technical standards. For example, my company's standard on drafting practice is much like that of several other companies'. The same thing is true of standards for common hardware items, such as a capscrew. When it comes to administrative standards, two companies might have a standard on exactly the same subject, but their contents might be entirely different. An administrative standard must be tailored to meet a certain situation, and to the specific needs of the organization that is to use it.

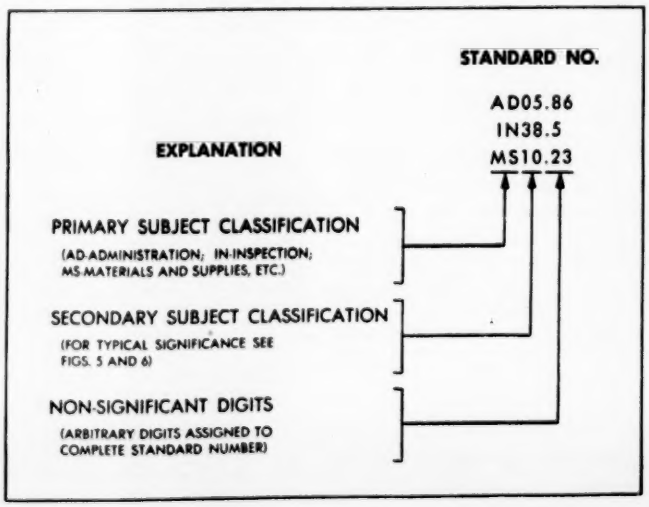
Because of this, I shall not discuss the details of our administrative standards. It is possible, however, that the framework for such standards might be very similar from one company to another.

What we did first was to decide on the major subdivisions of our standards—engineering, administration, accounting, and the like. These are shown in Figure 2. After that we prepared a detailed framework for each section—a master table of contents, so to speak. Figure 4 shows just how this was done, for a typical section. We listed not the titles of the standards we expected to have, but rather the subjects on which we thought we might some day want to have a standard.

These tables of contents required hard thinking and all the foresight we could bring to bear. We tried to keep the following in mind:

1. To think in terms of doing a job that would last for 100 years. We were conscious of the fact that systems once established are difficult and often costly to change.
2. To resist the temptation (and a little pressure) to set up the system in terms of organization structure or in terms of function of organization units. Organization structure and unit functions would be apt to change, and in so doing might obsolete our standards framework.
3. To set up the framework purely in terms of subject. When finished, it looked very much like a framework based on organization. The main difference was in our thinking. If we thought in terms of

Figure 3
Numbering System Used for Fairbanks-Morse Standards



subject, we were on firmer ground when it came to classifying standards properly and consistently.

4. To avoid making the subdivisions of our framework too fine. Suppose that in our Personnel Section we had had one subdivision on "holidays" and another on "vacations". We might have wanted to cover both subjects in a single standard; in that case we would have had no proper place to put it. We avoided this potential difficulty by lumping the two subjects together in a single subdivision on "holidays and vacations."

5. To create a framework that would be flexible and provide for future expansion to cover unforeseen needs.

To Be or Not to Be a Standard

From the very start we had no intention of going overboard in the direction of administrative standards. We had no thought of substituting a rule book for effective on-the-job management. Our whole company operates on a decentralized plan that places full responsibility on each plant manager and his staff organization. We were fully aware of the danger of over-standardization; we also were convinced that administrative standards, properly applied, could be a useful and effective tool.

Over the past five years we have developed a number of criteria for deciding when we should and when we should not issue a standard.

One factor we take into account is "duration of interest or effectiveness." Any subject to be covered by an administrative standard should be of permanent or relatively permanent interest. Another important factor is the "number of persons affected." A given subject might otherwise be ideal material for a standard, but if it will affect only a few people, we don't make it a standard. Other factors include: nature of subject matter; number of divisions affected; confidential character, necessity for immediate issuance.

These criteria are often valuable not only for determining whether we should have a standard, but also what should go into the standard if we decide to have one. The "duration of interest" factor—or test—can be applied to any portion of a standard. It is undesirable to include information or instructions in a standard, unless the information will be of permanent interest. If some new procedure is being introduced by means of a standard, we write the standard as if the procedure had been in effect for ten years. Special information needed for introducing the procedure is excluded from the standard itself. Such information can be conveyed in some other way, such as by a transmittal letter accompanying the standard when it is released.

Figure 4

Framework of Inspection Standards

SUBSECTION NUMBER	SUBJECT
	General Information
IN01	General
IN03	Duties and Responsibilities of Inspectors
IN06	Inspection Reports
IN09	Inspection Codes
	Inspection Methods
IN17	Use of Inspection Tools, Gages, and Comparison Standards
IN20	Dimensional and Surface Inspection
IN23	Inspection of Subcontracted Items
IN26	Receiving Inspection
IN29	Visual Inspection
IN32	Magnaflux Inspection
IN35	Radiographic Inspection
IN38	Process Inspection
IN41	Inspection of Salvage Operations
IN44	Inspection of Specific Products and Components
	Test Methods
IN50	Mechanical Tests
IN53	Magnetic Tests Other Than Magnaflux (see IN32)
IN56	Hydrostatic and Similar Tests
IN59	Sectioning Tests
IN62	Penetrant Tests
IN65	Sonic and Supersonic Tests
IN68	Electrical Tests
IN71	Chemical and Corrosion Tests
IN74	Metallurgical Tests

The Role of The Standards Department

People consider a standard like "Accident Prevention Policy," a matter for the safety department. Or they look at a standard like "Storage and Disposal of Obsolete Tools," as a function of the tool control group. Just what role should the standards department play in the preparation of these standards?

Figure 5 shows the principal functions involved in producing an administrative standard, and also shows where each function is performed. The steps shown in the chart may be further explained as follows:

Step 1—Proposal for Standard—Any suggestion that a new standard be developed must originate outside the standards department. Nevertheless, the idea will often stem indirectly from the standards department. For example, one of our responsibilities is to keep the rest of the organization informed on new standards being developed by other organizations. This often results in a suggestion that we prepare a similar standard for ourselves.

Step 2—Canvass to Confirm Need—After receiving a request to prepare a new standard, the standards department makes a canvass to find out whether the need is great enough to warrant a standard. One of the responsibilities of the standards department is to discourage unsound standardization.

Step 3—Authorization of Project—

After the need for a standard has been established, the project of preparing the standard must be authorized by the managers of the divisions primarily concerned.

Step 4—Gathering of Material—At this point the standards department has the responsibility of getting whatever information is required to prepare the first draft. Sometimes the scope of the standard lies mainly within the jurisdiction of some one division, such as the accounting division, the personnel division, etc. In that case the standards department would probably request that division to submit a preliminary write-up of the material. Ordinarily there is a real job to be done in selecting, supplementing, and organizing the material so as to produce a clear, workable standard. Therefore, we like any preliminary write-ups to be sketchy or rough. We have it understood that the standards department will do the worrying about completing it, organizing it, wording it, presenting it, and so forth.

Step 5—Preparation of First Draft—This is the job of translating a mass of information into a clear, logical, and workable standard. It is a refining process, concerned with separating out the non-essential material and retaining only that which is proper material for a standard. In performing this function, the standards department will frequently work closely with personnel from other divisions interested in the subject. We try to produce a first draft as close as possible to what we feel is wanted in the final standard.

Step 6—Review and Criticism—The completed first draft is sent to all interested divisions for review and comment, with a transmittal letter briefly describing the standard's origin. All comments and criticisms are sent to the standards department, sometimes with copies to other interested departments.

Step 7—Preparation of Final Draft—This is the job of coordinating the comments received and reconciling any conflicting viewpoints. Sometimes two or three sucessive drafts are required. Where necessary the standards department will call a meeting of representatives from all divisions concerned, for the purpose of resolving any points at issue. This is one place where majority rule does not apply. We believe it is better to defer the issuance of any standard rather than issue it in opposition to the views of any considerable group that will have to use it.

Step 8—Approval of Standard—The final draft of the standard is sent to all division managers for approval. Ordinarily the acceptability of the standard will have been pretty well established prior to this, through informal agreement with the people most concerned. Hence the division managers' approval is mainly for the record. However, it serves the further purpose of reminding them that the standard will shortly be issued, so that they may make any necessary preparations for its use in their divisions.

Step 9—Publication and Distribution—Publication and distribution is the last and simplest step. For some standards, we issue a covering "Standards Transmittal Letter," explaining the necessity for the standard, establishing an effective date for its application, and giving any temporary instructions that may be required.

Advantages of Administrative Standards Over Other Methods

By now we think we know why we get better results with administrative standards:

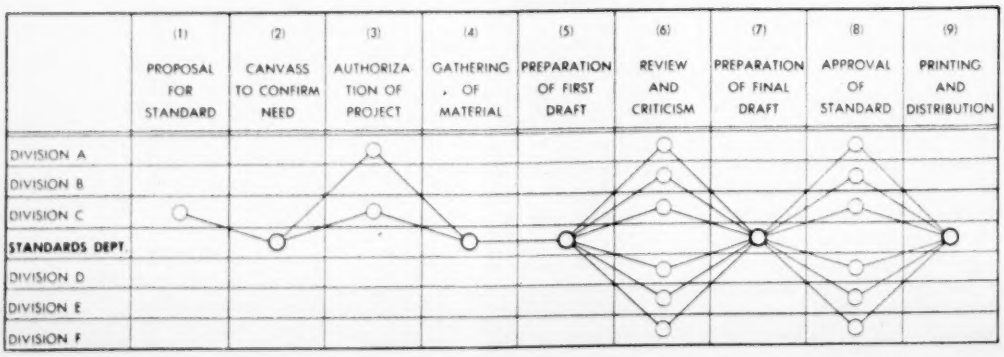
1. Administrative standards mean having one system instead of several. We are issuing this kind of information so that it will be used. We find it is used a great deal more if the person who has to use it has just one book to look in, one book to keep up to date, one index to refer to, and just one numbering system to become familiar with.

2. Administrative standards are more permanent. When instruction material was issued from several sources, it was very likely that one or more of these systems would become out of date or fall into disuse. On the other hand, with our present single system, every time we revise the table of contents we reconsider the status of every standard in the book.

3. They are better conceived and better written. It is not a simple matter to write clear, concise procedure instructions. Neither is it a simple matter to select the best form of table, chart, or graph for presenting information. On the contrary it requires a very high degree of skill. We have found that by concentrating this work in the standards department, these

(*continued on page 23*)

Figure 5
Location of Principal Functions in Producing a Typical Administrative Standard



Code for Pressure Piping Gets in the Act

Vent shows whether pipeline under railroad crossing remains undamaged from vibration. Maintenance crew checks vents such as this frequently

Standard Oil Company (N. J.)

THE Code for Pressure Piping is playing an important role in hearings by Connecticut and Massachusetts state commissions on complaints of property owners against the building of high-pressure natural gas pipelines across their properties. The commissions have the responsibility for seeing that gas is brought to Connecticut and Massachusetts citizens under conditions that will provide gas at economic rates and also make it economically possible for the pipeline to operate. At the same time, citizens must be protected from any undue hazards that might occur in piping natural gas at high pressures through thickly populated districts.

The pipelines in question have been authorized by the Federal Power Commission. Therefore, legally they have right-of-way across the property of Connecticut and Massachusetts citizens. The states have broad police powers, however, under which they have authority to regulate the lines to assure safety. Connecticut and Massachusetts property owners, objecting to the building of high-pressure pipelines across their estates, have brought their complaints to the commission on the question of safety. In reply, the Connecticut State legislature has recognized the safety problem and directed the state commission to adopt the requirements of the American Standard Code for Pressure Piping, B31-1951, as the minmium, together with other supplementary requirements that may be necessary under the circumstances. Similar legislation is pending in Massachusetts but in the meantime the Massachusetts Commission has adopted the Code on its own initiative.

One of the questions under consideration is whether the Code's requirements on cross country gas piping or its requirements on installation of gas piping in cities should control the piping that runs through the thickly populated country districts of these two states. The Code requires that walls of a pipeline running under a city street must be thicker than the walls of a pipeline running through open country. This question is troubling the commissions because of the additional cost in materials and money of running heavy walled pipe through miles of country with consequent higher prices to natural gas users.

At its meeting early in December, Sectional Committee B31 authorized its officers to send a formal communication to the interested commissions and others concerned explaining that both divisions of the Code provide pipe that is equally safe when used in the application for which it was designed. The distinction between city and country use is not made because of the heavier concentration of population, the committee explained. It is due to the fact that pipe running under a city street is exposed to vibration under heavy loads and is subject to electrolysis from electric lines and to corrosion from proximity to water pipes. Therefore, the committee concludes, as long as a pipe is not subject to vibration, electrolysis, or corrosion, the thinner walls required for country installations are just as safe

Standard Oil Company (N. J.)

Where soil conditions are likely to cause corrosion, pipe is protected by special wrappings. Here pipe is wrapped by hand; however, large operations usually use machines.

as the thicker walls required for city installations whether the pipe runs near a house or not. The committee's official statement reads:

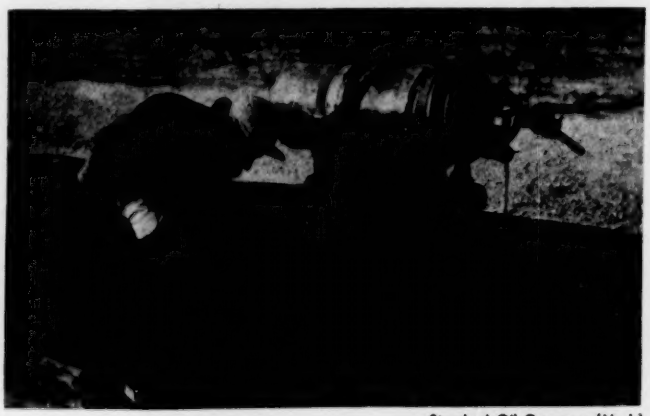
"Piping designed under either system is judged to be safe. The wall thickness required under Division 1 is greater than for Division 2 to provide for conditions that are known to exist in city or urban areas and not likely in rural areas. Traffic shock and vibration caused by streetcars, busses, trucks, and other traffic creates loadings that are substantial but not capable of precise calculation. In city areas the pipe must frequently be laid through unstable filled areas, adjacent to water mains, sewers, etc, which exposes the pipe to uneven support and possibly subject to wash out in the event of a water main break. The total of these conditions is difficult or impossible to forecast and so the committee has increased the wall thickness in Division 1 to provide for the known forces that are not capable of exact determination."

Coleman Farrell, writing in *Public Utilities Fortnightly* (Oct. 25, 1951), comments on pipeline failures as follows: "Most authorities estimate that between 100 and 200 breaks occur annually in the 275,000 miles of natural gas mains in the United States. . . . The causes of pipeline failure are varied. Some breaks occurred while the lines were being tested for tightness by the constructors. Some were caused by welding failures or obsolete pipe-laying techniques. Some were the result of corrosion, of laminations in the pipe wall, or gouges caused by vehicles, or by the application of unexpected weight and vibration. Others were caused by freak accidents. . . .

"A pipeline engineer explains the pattern of pipeline failures this way: Welding failures occasionally cause line breaks. But, contrary to public opinion, they are not a major cause of explosions. More frequently they cause leaks, which can be spotted by maintenance inspectors and corrected before they become serious. Corrosion is a problem in older lines because it takes time for rust to eat through a half-inch wall of pipe, and because adequate anticorrosive protection may not have been built into earlier lines. Laminations, tiny flaws in the pipe wall, cause some line breaks and are the despair of pipeliners, since they cannot be detected except by x-raying the entire pipe, at prohibitive cost. But they occur so infrequently that x-raying is unjustifiable."

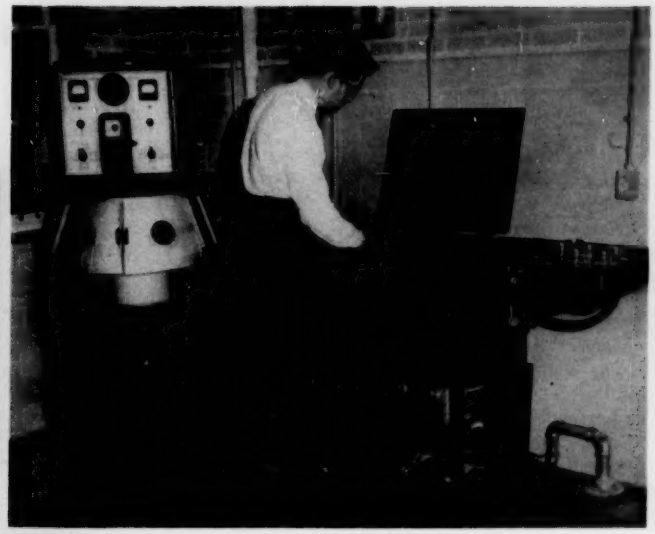
The technique of x-raying pipe welding is considered highly efficient. However because of the possibility of different interpretations it is not infallible. At the present time only a limited supply of x-ray equipment is available, and trained technicians to interpret the x-ray pictures are at a premium. Therefore, whenever the x-ray technique is used, only a spot check can be made on the work of each welder in the field. Because the process is so new, the Code for Pressure Piping does not call for x-raying seams and has no specific provisions for welding. The first welding specification especially designed for pipelines is now nearing completion. The specification is being prepared under the joint sponsorship of the American Petroleum Institute and the American Gas Association. Others who are assisting include American Welding Society, and the Association of Pipeline Contractors, the Welding Division of the National Electrical Manufacturers Association, and representatives of pipe manufacturers and individuals associated with related industries. As soon as it is completed, it will undoubtedly be adopted by reference in the Code. At present, the Code refers to the chapter on welding qualifications in the Unfired Pressure Vessels Code, a part of the ASME Boiler Code.

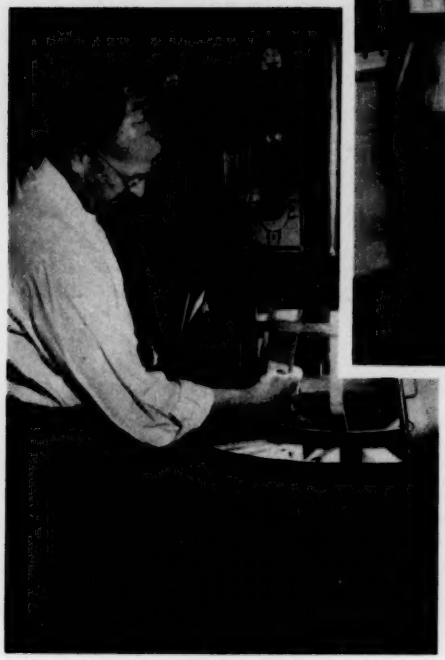
At its December meeting, Sectional Committee B31 decided to make it easier for state commissions to use the Code requirements for gas pipelines. The committee plans to coordinate all the material referred to in the section on gas pipelines in a completely self-contained section which will be reprinted separately for distribution to state commissions and other organizations concerned with pipeline safety.



Standard Oil Company (N. J.)

Here an x-ray technician adjusts tube and film magazine on pipeline weld in preparation for an exposure. At present only a limited supply of x-ray equipment is available and trained technicians to interpret the x-rays are few.





Textile Information Service

International Activity on Textile Tests

Work underway in ISO Committee will provide comparable results either by machine or hand methods. Machines widely used in U. S. are impractical in many countries where companies cannot afford expensive equipment. Fadeometer (left) reproduces in short time effect of months of Florida sunshine. Launder-Ometer (right) duplicates in a few hours months of average home washing.

IT was not the substantial progress on technical questions chalked up by ISO Committee TC 38 that made the greatest impression on U.S. delegates to the international textile meetings at Bournemouth last June. It was, instead, the opportunities for international understanding that opened when delegations from 16 countries discussed common problems. Over and over again in their reports, United States delegates stressed their surprise at the misunderstandings that the Bournemouth meetings exposed.

Fifteen delegates represented the U.S. at Bournemouth. Their reports were presented October 17 at a meeting sponsored by the American Association of Textile Chemists and Colorists, the American Society for Testing Materials, and the American Standards Association. The occasion was a meeting in New York of ASTM Committee D-13 on Textile Materials.

Hours of discussion sometimes took place, the delegates reported, before British and American delegations discovered that the words they were using, although the same in sound and spelling, had entirely different meanings. In one notable case, no agreement was in sight until it finally developed that the term "moisture regain" was being interpreted by the British to mean a correction on the basis of simple oven drying; by the Americans to mean a clean scoured fiber correction. Again and again, it was discovered, tests being discussed were intended for one purpose in one country and for another purpose in another.

The success of its negotiations lay in the fact that the American delegation approached the meetings "not with the idea that we are absolutely right but that we are open to conviction if any of our proposals

(*continued on page 26*)

How Standards Make a Valve

ONE of the exhibits pictured on the frontispiece of the December issue of STANDARDIZATION showed a valve. The headline told the story—"44 Standards and Specifications Go into the Design and Production of these typical Crane valves." In the design of valves, one of the prime considerations is that of selecting proper materials. In these particular valves, designed to meet certain service conditions, the materials used were those conforming to the requirements of specifications of the American Society for Testing Materials and the Society of Automotive Engineers. Body and bonnet materials conform to the requirements of ASTM A-217. Bolt and nut materials comply with the requirements of ASTM Specifications A-193 and A-194. Material for other parts of the valves comply with various other existing specifications.

In these typical cases Crane Company found that at least 14 standards were needed to cover the material requirements. For special services there are standards and specifications governing castings, steel bars, material for high temperature service and material for general service, as well as different types of materials for nuts and bolts:—

ASTM A95, Carbon Steel Castings for Valves, Flanges and Fittings for High Temperature Service
ASTM A107, Hot-Rolled Carbon Steel Bars
ASTM A108, Cold-Finished Carbon-Steel Bars and Shafting
ASTM B132, Leaded High-Strength Yellow Brass Sand Castings (Manganese Bronze)
ASTM A157, Alloy Steel Castings for Valves, Flanges, and Fittings for High Temperature Service
ASTM A181, Forged or Rolled Steel Pipe Flanges, Forged Fittings and Valves and Parts for General Service
ASTM A182, Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High Temperature Service
ASTM A193, Alloy Steel Bolting Materials for High Temperature Service
ASTM A194, Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High Temperature Service
ASTM A197, Cupola Malleable Iron
ASTM A216, Carbon Steel Castings Suitable for Fusion Welding for High Temperature Service
ASTM A217, Alloy Steel Castings for Pressure Containing Parts Suitable for High Temperature Service
ASTM A307, Steel Machine Bolts and Nuts and Top Bolts
SAE 4140, Chromium-Molybdenum Steel

Then there are dimensional standards and design standards that specify requirements for pipe flanges and fittings, pipe threads, bolts and nuts, gaskets for pipe flanges, screw threads, gaging practices for bill and roller bearings, facings and finishes for flanges, and marking systems. There are the safety provisions of the Code for Pressure Piping and the Boiler Construction Code. No less than 23 standards were used in the designing of these Crane valves.

ASA B16e, Steel Pipe Flanges and Flanged Fittings
ASA B16.10, Face-to-Face Dimensions of Ferrous Flanged and Welding End Valves
ASA B2.1, Pipe Threads
ASA B1.1, Unified and American Screw Threads
ASA B16.20, Ring-Joint Gaskets
ASA B36.10, Wrought Steel and Wrought Iron Pipe
ASA B16.14, Ferrous Plugs, Bushings, and Lock Nuts with Pipe Threads
ASA B18.2, Wrench Head Bolts and Nuts and Wrench Openings
ASA B1.3, Acme and Other Translating Threads
ASA B1.4, Screw Threads for High Strength Bolting
ASA B16.21, Non-Metallic Gaskets for Pipe Flanges
ASA B1.2, Screw Thread Gages and Gaging
ASA B3.4, Gaging Practices for Ball and Roller Bearings
MSS SP5, By-Pass Size Standard
MSS SP6, Standard Finishes for Contact Faces of Connecting End Flanges of Ferrous Valves and Fittings
MSS SP9, Spot Facing for Bronze, Iron and Steel Flanges
MSS SP25, Standard Marking System for Valves, Fittings, Flanges and Unions
MSS SP28, Method of Designating Drain Tappings, Standard for Valves and Fittings
SAE Standard for Lubricating Fittings
ASA B31.1, Code for Pressure Piping
ASME Boiler Construction Code
API 6D, Specification for Pipe Line Valves
API 600, Specification for Refinery Use Valves

The story would not be complete without reference to standards for the machine tools that produce the valve and the standard drawing and drafting practice used in designing it:

ASA Z14.1, Drawing & Drafting Room Practice
ASA B5.4, Taps
ASA B5.12, Twist Drills
ASA B5.14, Reamers
ASA B5.3, Milling Cutters
ASA B5.11, Adjustable Adapters for Multiple Spindle Drilling Heads
ASA B5.8, Chucks & Chuck Jaws for Turret and Automatic Lathes

The subject of the use of standards in valve design might well deserve a more comprehensive story; however, the frontispiece picture and this short account illustrate the importance and utility of standards in this particular field of endeavor.

This exhibit, prepared by the Crane Company, Chicago, was displayed at the Second National Standardization Conference, October 20-22, 1951. Standards referred to were displayed on the panels. Strings led from the standards to the parts of the valve to which they applied.

Gene Dauber

What's New on American Standard Projects

Ball and Roller Bearings, B3—

Sponsor: Mechanical Standards Committee

A subcommittee on load ratings has been organized by the B3 committee. Mr Gunnar Palmgren, vice-president, Engineering and Research, SKF Industries, Inc, is chairman of this new group.

Electric and Magnetic Magnitudes and Units, C61—

Sponsor: Electrical Standards Committee

A special subcommittee of C61 has been organized to make proposals concerning a system of definitions of fundamental electrical magnetic units after first defining all necessary terms. The subcommittee will also attempt to propose a name for the system of units based on the MKS rationalized system plus a fourth unit, preferably the ampere; set up a cooperative relationship with ASA Committee C42 (Definition of Electrical Terms) on fundamental and derived terms; and make recommendations to the full C61 committee regarding names and relationships of permeabilities, permittivities, and other electromagnetic quantities.

At the initial meeting of this special group the members decided to proceed first on the specification of quantities requiring terminology in some self-consistent logical order, without restriction as to exact names, but rather by specifying ideas. The subsequent work will consist of thorough clarification of these logically developed ideas by resorting to hypothetical, idealized, but physical experiments.

With this in mind the committee developed a list of fundamental symbolic concepts to be defined. Each member of the subcommittee will attempt to define the names on the list and submit them to the secretary. When the definitions have been collated they will be circulated to the subcommittee members for comment and study.

In discussing a name for the system of units and rationalizations, the committee decided to postpone all specific consideration of units until after the concepts themselves and their definitions have been agreed upon.

The members of this special subcommittee are: Carl C. Chambers, Dean, Moore School of Electrical Engineering, University of Pennsylvania, representing the American Association for the Advancement of Science, *chairman;* Edward I. Hawthorne, Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia, *secretary;* Raymond C. Machler, Leeds and Northrup Company; Carleton Murdock, Dean of the University Faculty, Cornell University, Ithaca, New York, representing the National Research Council; S. A. Schelkunoff, Bell Telephone Laboratories, Murray Hill, N.J., representing the Institute of Radio Engineers; and F. B. Silsbee, Chief, Division of Electricity, National Bureau of Standards, representing NBS.

The C61 committee serves as the advisory group on Electric and Magnetic Units to the U.S. National Committee of the International Electrotechnical Commission.

Dr J. J. Smith, General Electric Company, chairman of the IEC technical committee on Electric and Magnetic Magnitudes and Units, is also chairman of the full C61 sectional committee. He represents the National Electrical Manufacturers Association on this ASA committee.

Hazards to Children—

A General Conference was held December 5 to consider a request from the American Academy of Pediatrics for the initiation of an ASA project to develop safety standards for the protection of children from hazards that are causing injury and death. After agreeing on the need for such work, the members of the conference drew up a list of seven subjects for which they believed safety standards might be developed. These are recommended for additional study: — flammability of textiles for children's clothing; labeling of coatings and coated materials for children's toys and furniture; harnesses and sleeping garments; specifications and design of wooden furniture; baby carriages and strollers; wheeled toys; safe design of other toys.

This list of proposed activities will be submitted to all organizations represented at the conference as well as those organizations who were invited but did not send representatives. Future action will depend upon the recommendations of these groups.

Organizations represented at the conference were:

American Academy of Pediatrics; Agricultural Extension Service; American Home Economics Association; American Hospital Association; American Public Health Association; Boy Scouts of America; Child Study Association of America; Federal Security Agency, Food & Drug Administration; Federal Security Agency, Children's Bureau; Institute of Safer Living; Lead Industries Association; Metropolitan Life Insurance Company; National Bureau of Standards; National Commission on Safety Education, National Education Association; National Organization for Public Health Nursing; National Safety Council; National Society for Crippled Children and Adults; Toy Manufacturers of USA, Inc; U.S. Public Health Service; United Infants & Childrens Wear Association.

Letter Symbols, Y10—

Sponsor: American Society of Mechanical Engineers

The 1942 edition of American Standard Letter Symbols for Hydraulics is being reviewed by Subcommittee Y10.2 for possible revision. Everyone interested is invited to send in comments concerning the 1942 edition as well as suggestions for additions or changes. Dr. J. M. Robertson, chairman, announces that it has been tentatively decided to consider the field of hydraulics as being concerned with all phases of the motion of liquids. An attempt will be made to include symbols in the field of hydrology and waterhammer. Suggestions and comments

Standard Oil Company (N. J.)

Typical of textile manufacturing plants — a factory in Fall River, Mass.

should be sent to Dr. Robertson, P. O. Box 30, State College, Penna.

Office Standards, X2—

Sponsor: National Office Management Association

Two new proposed American Standards have been sent to letter ballot of the X2 committee. They are: Operating Voltage Range of Office Dictating Equipment, X2.5.16, the Maximum Electrical Leakage of Dictating Machines, X2.5.17. If approved by X2 they will be submitted to ASA for approval as an American Standard.

Public and government use of dictation equipment has expanded greatly in recent years. The principal manufacturers of this equipment believe that a standard operating voltage range will help to eliminate unsound over-design necessitated at present by various miscellaneous existing specifications. Some of these specifications call for operation of equipment over ranges which are seldom, if ever, encountered in practice.

The manipulation of the controls of dictating and transcribing equipment requires physical contact with the equipment. The proposed standard on maximum electrical leakage attempts to alleviate any danger of physical harm and discomfort due to electrical shock.

Motor Oil Cans, B64—

A proposed set of American Standard dimensions for motor oil cans has been sent to all those interested in the subject for review and criticism. These dimensions were prepared by a special drafting committee appointed as the result of a general conference held May 24, 1951. (STDZN, July, 1951, page 224.) At this conference it was unanimously agreed that project on standardization of the diameter and height of motor oil cans should be initiated under ASA procedure, and a drafting committee be set up to work out a proposed set of dimensions.

The current proposal lists the volume (minimum-no lid) and the diameter for the chuck wall; central panel (for embossing); overall lid; overall bead; plug; and overall height for 1-quart, 5-quart, and 1-gallon cans.

Comments sent in by reviewers will be studied by the drafting committee prior to submitting a final draft to the general conference at its next meeting.

Members of the drafting committee are: R. Chester Reed, The Texas Company, chairman; A. R. Dismukes, Gulf Oil Corporation; F. Norton Landon, Sun Oil Company; and William J. Wood, Atlantic Refining Co.

Rayon Fabrics, L22—

Sponsor: National Retail Dry Goods Association

The Consumer Goods Committee of the American Standards Association recommended approval of the proposed American Standards of Rayon Fabrics at a meeting November 27. These standards will now be submitted to Standards Council for final disposition.

In submitting these 51 specifications for the end use of rayon fabrics to the Council, the CGC recommended approval with the proviso that the standards "shall be opened to revision within two years from the date of their publication."

They also provided that "since the history of the development of the rayon project indicates that there is great need for a consistent set of American Standards for the testing of rayon fabrics, it is recommended that the sponsors for the project on Textile Test Methods (ASA project L14) proceed as rapidly as possible with the requested examination of those test methods which are included by reference in the proposed rayon specifications, with the aim of either approving these methods as American Standards or of providing alternative test methods."

They also requested that "as additional American Standard methods for testing rayon fabrics become available the sectional committee for the rayon project consider the revision of those rayon specifications to which such test methods may apply."

The National Retail Dry Goods Association is sponsor for the rayon project, on which work began in 1949. It completed its work and turned the standards over to the American Standards Association in early October, 1951.

The 180-page Proposed Standards contain specifications for over 51 end uses of rayon and rayon-mixed fabrics. Rayon is defined as any fabric which has 50 percent or more of fibres made by viscose, acetate or cupra ammonium processes.

Pipe Flanges and Fittings, B16—

Sponsors: American Society of Mechanical Engineers; Heating, Piping, and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry

The subcommittee working on cast brass solder-type drainage fittings

met recently in Port Huron, Mich. This committee's work has extended over a two-year period. There are still a few remaining details to be worked out before the project is completed. Members of this group are: J. E. Gray, chief development engineer, Mueller Brass Co., chairman; A. C. Arbogast, Northern Indiana Brass Co., Elkhart, Ind.; A. I. Heim, Copper and Brass Research Association, New York, N. Y.; W. M. Mulholland, Chase Brass and Copper Co., Waterbury, Conn.; and C. S. Stouffer, Stanley G. Flagg and Co., Philadelphia, Pa.

Standards for Motion Pictures, PH22—

Sponsor: Society of Motion Picture and Television Engineers

Deane R. White, research director, technical division of duPont Photo Products Department, has been elected chairman of committee PH22.

Signalling and Controls for Graphic Arts Equipment, B65—

A new project to prepare standards that will greatly increase the safety of printing and binding machines has been initiated by the American Standards Association. The Research and Engineering Council of the Graphic Arts Industry has been invited to act as sponsor and accept the administrative responsibility for the work. ASA action was the result of recommendations from a conference of manufacturers and purchasers of printing and binding machinery, employees using the equipment, and groups concerned with industrial safety.

Many accidents occur in printing and binding plants because signals are misunderstood or the controls for stopping the machines are not easily reached, discussion at the conference indicated.

AMERICAN STANDARDS

Status as of December 18, 1951

Legend

Standards Council.—Approval by Standards Council is final approval as American Standard; usually requires 4 weeks

Board of Review.—Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks

Correlating Committee.—Approve standards to send to Standards Council or Board of Review for final action; approval by correlating committee usually takes 4 weeks

Consumer

American Standards Just Approved—

Standard Definitions of Terms Relating to Textile Materials (ASTM D 123-50; ASA L14.12-1951)

Standard Method of Test for Hard Scoured Wool in Wool in the Grease (ASTM D 584-50; Revision of ASA L14.40-1949)

Standard Methods of Testing Felt (ASTM D 461-50; ASA L14.52-1951)

Tentative Methods of Test for Fineness of Wool (ASTM D 419-50 T; Revision of ASA L14.26-1949)

Tentative Methods of Test for Fineness of Wool Tops (ASTM D 472-50 T; Revision of ASA L14.29-1949)

Tentative Methods of Test for Asbestos Yarns (ASTM D 299-50 T; ASA L14.18-1951)

Tentative Methods of Testing and Tolerances for Glass Yarn (ASTM D 578-50 T; ASA L14.36-1951)

Standard Recommended Practice for a Universal System of Yarn Numbering (ASTM D 861-50; Revision of ASA L14.48-1949)

Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

In Standards Council—

Standards for Rayon Fabrics, and Test Methods for Rayon Fabrics, L22

Sponsor: National Retail Dry Goods Association

Electrical

American Standards Just Published—

Attachment Plugs and Receptacles, C73b-1951 (Addition to, and partial revision of, C73-1941) $.35

Sponsor: National Electrical Manufacturers Association

Preferred Voltage, 100 Volts and Under, C67.1-1951 $.25

Sponsor: Electrical Standards Committee

Specifications for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft, ASTM B8-50; C7.8-1951 $.25

Specifications for Hard-Drawn Copper Alloy Wires for Electrical Conductors ASTM B105-49; ASA C7.10-1951 $.25

Specifications for Figure-9 Deep-Section Grooved and Figure-8 Copper Trolley Wire for Industrial Haulage, ASTM B116-49; ASA C7.11-1951 $.25

Specifications for Cored, Annular, Concentric-Lay-Stranded Copper Conductors, ASTM B226-50; ASA C7.16-1951 $.25

Specifications for Hard-Drawn Copper-Covered Steel Wire, ASTM B227-49; ASA C7.17-1951 $.25

Specifications for Concentric-Lay-Stranded Copper-Covered Steel Conductors, ASTM B228-49; ASA C7.18-1951 $.25

Specifications for Concentric-Lay-Stranded Copper and Copper-Covered Steel Composite Conductors, ASTM B229-49; ASA C7.19-1951 $.25

Tentative Specifications for Hard-Drawn Aluminum Wire for Electrical Purposes, ASTM B230-50T; ASA C7.20-1951 $.25

Specifications for Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn, ASTM B231-49; ASA C7.21-1951 $.25

Tentative Specifications for Concentric-Lay-Stranded Aluminum Conductors, Steel-Reinforced (ACSR), ASTM B-232-50T; ASA C7.22-1951 $.25

Specifications for Rolled Aluminum Rods (EC Grade) for Electrical Purposes, ASTM B233-49; ASA C7.23-1951 $.25

Method of Test for Resistivity of Electrical Conductor Materials, ASTM B193-49; ASA C7.24-1951 $.25

Specifications for Medium-Hard-Drawn Copper Wire, ASTM B2-49; ASA C7.3-1951 $.25

Specifications for Bronze Trolley Wire, ASTM B9-49; ASA C7.5-1951 $.25

Specifications for Copper Trolley Wire, ASTM B47-49; ASA C7.6-1951 $.25

Specifications for Hot-Rolled Copper Rods for Electrical Purposes, ASTM B49-50; ASA C7.7-1951 $.25

Sponsor: American Society for Testing Materials

American Standard Just Approved—

Capacitors, C55.1-1951 (Revision of C55-1934)

Sponsor: American Institute of Electrical Engineers

In Correlating Committee—

Electrical Resistance of Insulating Materials, Methods of Test (Revision of

ASTM D 257-49 T; ASA C59.3-1949)

Sponsor: American Society for Testing Materials

Gas Burning Appliances

American Standards Just Published—

Approval Requirements for Central Heating Gas Appliances

Volume 1—Steam and Hot Water Boilers, Z21.13.1-1951 $2.00

Volume 2—Gravity and Forced Air Central Furnaces, Z21.13.2-1951 $2.00

Volume 3—Gravity and Fan Type Floor Furnaces, Z21.13.3-1951 $2.00

Volume 4—Gravity and Fan Type Vented Recessed Heaters, Z21.13.4-1951 $2.00

Approval Requirements for Gas Unit Heaters, Z21.16-1951 $1.50

Sponsor: American Gas Association

Highway Traffic

American Standard Just Approved—

Adjustable Face Traffic Control Signal Head Standards, D10.1-1951 (Revision of D10.1-1942)

Sponsor: Institute of Traffic Engineers

Horticulture

In Correlating Committee—

Nursery Stock, Z60.1 (Revision of Z60.1-1949)

Sponsor: American Association of Nurserymen

Mechanical

American Standards Just Approved—

Nonmetallic Gaskets for Pipe Flanges, B16.21-1951

Wrought Copper and Bronze Solder Joint Fittings, B16.22-1951

Malleable-Iron Screwed Fittings, 150 Lb, B16.3-1951

Sponsors: Heating, Piping, and Air Conditioning Contractors National Association; American Society of Mechanical Engineers; Manufacturers Standardization Society of the Valve and Fittings Industry

Bearing Mounting Accessories, B3.9-1951

Sponsor: Mechanical Standards Committee

In Correlating Committee—

Ring-Joint Gaskets and Grooves for Steel Pipe Flanges, B16.20

Sponsors: American Society of Mechanical Engineers; Heating, Piping, and Air Conditioning Contractors National Assn; Manufacturers Standardization Society of the Valve and Fittings Industry

Physical Specimens of Surface Roughness and Lay, B46

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Optics

In Correlating Committee—

Nomenclature and Definitions in the Field of Colorimetry, Z58.1.2

Sponsor: Optical Society of America

Petroleum Products and Lubricants

In Board of Review—

Test for Sulfated Residue from New Lubricating Oils (ASTM D 874-51; Z11.68)

Test for Knock Characteristics of Motor Fuels by the Research Method (D 908-51; ASA Z11.69)

Test for Benzene and Toluene by Ultraviolet Spectrophotometry (D 1017-51; Z11.70)

Test for Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates (D 1019-51; ASA Z11.71)

Test for Apparent Viscosity of Lubricating Greases (D 1092-51; ASA Z11.72)

Test for Sodium in Lubricating Oils and Lubricating Oil Additives (D 1026-51 as revised on p 8 of 1951 D-2 report; ASA Z11.73)

Test for Flash Point by Tag Closed Tester (ASTM D 56-51; Revision of ASTM D 56-36; ASA Z11.24-1936 R 1947)

Test for Sulfur in Petroleum Products and Lubricants by Bomb Method (D 129-51; Revision of ASTM D 129-50; ASA Z11.13-1950)

Definitions of Terms Relative to Petroleum (D 288-51; Revision of ASTM D 288-49; ASA Z11.28-1949)

Test for Neutralization Value (Acid and Base Numbers) by Electrometric Titration (D 664-51; Revision of ASTM D 664-49; ASA Z11.59-1949)

Test for Distillation of Plant Spray Oils (D 447-51T; Revision of ASTM D 477-41; ASA Z11.43-1941)

Test for Unsulfonated Residue of Plant Spray Oils (D 483-51T; Revision of ASTM D 483-40; ASA Z11.41-1940)

Test for Carbon Residue of Petroleum Products (Ramsbottom Carbon Residue) (D 524-51T; Revision of ASTM D 524-42; ASA Z11.47-1942)

Sponsor: American Society for Testing Materials

Withdrawal Requested—

Test for Steam Emulsion of Lubricating Oils (ASTM D 157-36; ASA Z11.15-1936)

Sponsor: American Society for Testing Materials

Safety

American Standard Just Approved—

Manual of Accident Prevention in Construction, A10.1-1951 (Revision of A10.1-1939)

Sponsors: American Institute of Architects; National Safety Council

In Correlating Committee—

Code for Forging and Hot Metal Stamping, B24.1 (Revision of B24-1927)

Sponsors: Drop Forging Association; National Safety Council

Safety Code for Mechanical Power Transmission Apparatus (Revision of B15-1927)

Sponsors: Association of Casualty and Surety Companies, Accident Prevention Department; International Association of Governmental Labor Officials

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New Government Policy to Coordinate Standards

"GREATER utilization of nationally recognized industry and technical society standards and specifications" is one of the major points in a cooperative arrangement signed in November by the General Services Administration, the Munitions Board, Department of Defense, and the Bureau of the Budget. Purpose of the arrangement is to improve standards, specifications, packaging and packing requirements, and inspection policies.

The "area of understanding" agreement, signed by Jesse Larson, Administrator of General Services; J. D. Small, chairman, Munitions Board, Department of Defense; and F. J. Lawton, Director of the Bureau of the Budget, provides that "military and civilian procurement operations will be closely coordinated with respect to the technical functions of developing standard purchase specifications and their use, packaging standards, inspection policies and others."

Prior to the signing of the agreement the staffs responsible for these functions were organized along parallel lines in the military and civilian branches of the Government. Under the agreement the Munitions Board Standards Agency is designated to represent the military and GSA's Federal Supply Service will represent all

civilian agencies of the government.

Major specific points of the agreement include:

1. Cooperative development of Federal Specifications covering common items of supply in Government and their mandatory use by all agencies, military and civilian, wherever practicable, after a one year trial period, during which they would be known as Interim Specifications and optional for use.

2. The coordinated development through the Munitions Board's Standards Agency of military specifications covering items required for national defense which would be mandatory for use by all military agencies after a trial period during which they would be known as Interim Military Specifications, optional for use.

3. Elimination of duplicate or nearly identical specifications so that a single document can be used.

4. Greater utilization of nationally recognized industry and technical society standards and specifications "to the maximum extent" with corresponding reduction in the development of specifications for items where the volume of procurement is not sufficient to warrant the expense and effort of preparing a specification.

5. Coordination in the problem of developing uniform standard quantity packs for items frequently handled, and of providing standard packaging requirements to meet the needs of domestic and export shipments.

6. Maximum utilization of existing inspection and test facilities and agreements to develop inspection policies and procedures mutually, including inspection manuals and training methods.

"The agreement, in effect, narrows the gap between what is purely a military item and a civilian item, and brings the resources of all parties to bear upon the problem of handling singly the work connected with supplying those needs which all agencies use," declares the General Services Administration in its announcement. "The agreement also initiates for the first time a concerted effort between the military and civilian agencies to standardize the items which are used in common by the Federal Government."

A supplemental agreement has also been signed between the Department of Defense and GSA defining specific tasks and outlining methods under which the cooperative program is to work.

It is understood that Willis MacLeod, now head of the Standards Division, General Services Administration, will head a new Federal Standards Council which will put this program into effect.

This agreement, together with the others so far concluded between the Department of Defense and GSA are in line with recommendations of the Hoover Commission. The other agreements related to traffic management, utilities, communications, and coordination of civilian and military procurement in Government.

Administrative Standards

(*continued from page* 14)

special skills are developed to a much higher level. The standards we have issued are much more practical from the standpoint of the user.

4. Administrative standards tend to encourage wider distribution of many types of information. Formerly our organization charts were pretty much a special plaything of the personnel experts and a few of our higher supervisors. Now our practice is to issue these charts as administrative standards and distribute copies to all supervisors in any way concerned. We have found that this promotes understanding and eliminates a certain amount of wasted time and lost motion. This is just a typical example.

5. Administrative standards provide an excellent way to solve procedural problems that overlap two or more divisions. Formerly such problems had a tendency to drag along, sometimes interminably. The solution "didn't fit" the Accounting Manual. It was "outside the scope" of the Supervisor's Reference Book. It was "not my division's responsibility," etc. All such problems are potential subject matter for administrative standards, and as such can be brought to the standards department for appropriate action.

6. The standards department's neutral position makes it unusually effective. The standards department, as the prime mover in handling procedural problems, is in a good position to coordinate and reconcile the conflicting viewpoints of different operating groups. It can take the time to unravel the complexity of details while keeping a firm finger on the basic issues. It is not so apt to be moved to premature action by the sore spots of the moment.

7. The very fact of having administrative standards brings to light a lot of problems. Suggestions on any subject flow readily to the standards department, generally with the comment, "There ought to be a standard." Many of these suggestions would never be made if the people had to take them up with the groups directly responsible for a given condition.

8. Administrative standards stimulate smaller groups within the company to practice standardization within their own units. For example, several of our departments have begun to use what we call "Departmental S.O.P.'s" (standard operating procedures). They saw how they benefited from standard procedures on a plant-wide basis, and they then applied the same technique to their own department's problems.

• • **The industries** of Eastern European countries are being integrated with those of the Soviet Union to the extent that they now "must be regarded as parts of one complex whole in any future calculations of military-economic strength," according to The *New York Times*, November 5, 1951. In a signed article, *New York Times* correspondent Harry Schwartz declares that "along with standardization of production has gone standardization of weapons in the Eastern European armies with those of the Soviet Union so that armaments production in any one of these countries can be used by the military forces of all."

Mr Schwartz quotes Hilary Minc, head of Poland's economy, to the effect that economic planning in the Eastern European countries aims at a division of labor so that each country "will produce those commodities for which its resources are most suited and are most needed by the Communist bloc as a whole."

"In the new industry being built up in Eastern Europe," Mr Schwartz declares, "Soviet machinery is playing a major role, along with Soviet industrial techniques and technicians." Engineers, factory supervisors, and similar personnel are being sent to the Soviet Union to learn the methods employed there and then apply them in their native countries, Mr Schwartz explains.

In integrating their economies and production, the Soviet planners determine what and how much the industries of each country shall produce, what each country shall specialize in, the nature and tempo of

capital development, and the like, Mr Schwartz says.

Rumania now gets 55 percent of her iron ore, 90 percent of her coke and 56 percent of her cotton from the Soviet Union, Mr Schwartz declares. "The Polish metallurgical industry in Silesia now operates primarily on iron ore mined at Krivoi Rog in the Soviet Ukraine. Raw materials flow freely between the satellites and Russia, in both directions, as though national frontiers did not exist."

• • **Cyril Ainsworth,** technical director and assistant secretary of the American Standards Association, will take part in a seminar on problems of labor relations in Asiatic countries to be held in Calcutta, India, February 2-23, 1952. Mr Ainsworth will serve as one of the members of a panel of experts being sent to India by the International Labor Organization as part of the technical assistance program of the United Nations. His subject will be accident prevention, and he will be responsible for four major lectures with special reference to structural safety, lay-out of space, installation of machines, good housekeeping, lighting, sanitation, transportation, and handling and storage of materials. It is expected that some 35 participants—labor inspectors and labor and welfare officers and officials responsible for supervising the enforcement of protective labor legislation—from a number of Asiatic countries will attend.

Mr Ainsworth will take the opportunity while in the Far East to visit a number of national standards associations, including those in India, Pakistan, Australia, and New Zealand. He will also make a brief stop in London for a discussion with the British Standards Institution of technical problems and of the relationship of the U.S. and British standardization programs.

• • **The first meeting** of an American group that will act as administrative committee for the secretariat of the international committee on petroleum products, ISO/TC 28, was held December 11. K. G. Mackenzie, assistant to the vice-president, The Texas Company, and chairman of ASA Sectional Committee Z11 on Petroleum Products, was elected chairman. L. C. Burroughs, assistant to the vice-president, Shell Oil Company, was elected vice-chairman. W. T. Gunn, Director of Refining, American Petroleum Institute and assistant secretary of Committee Z11, is secretary of the new group.

As secretariat for the international committee, the American Standards Association will look to Sectional Committee Z11, sponsored by the American Society for Testing Materials, for the American viewpoint on technical questions.

Specific problems that may be taken up by the ISO committee include certain knock rating tests, volume correction tables, and measurement and sampling procedures. It is expected that suggestions may be received from other countries participating in the work of the committee.

A meeting of ISO/TC 28 is to be held in June in New York.

International Meetings in New York

MEETING dates have tentatively been set for a number of Technical Committees of the International Organization for Standardization in June 1952 at Columbia University, New York. The American Standards Association is acting as host. The meetings will include the technical committees, the council, and the general assembly.

The following list includes the name of the country whose national standards association holds the secretariat for each committee, and the dates on which the meeting is tentatively scheduled:—

	June
Ball and Roller Bearings, ISO/TC 4, subcommittees, and working groups (Sweden)	16-19
Cast Iron and Cast Steel, ISO/TC 25 (United Kingdom)	9-11
Cinematography, ISO/TC 36 (United States)	9-10
Iron and Steel, ISO/TC 17 (United Kingdom)	9-11
Lac, ISO/TC 50 (India)	17-18
Limits and Fits, ISO/TC 3 (France)	9-11
Machine Tools, ISO/TC 39 (France)	16-18
Mica, ISO/TC 56 (India)	9-11
Petroleum Products, ISO/TC 28 (United States)	12-14
Photography, ISO/TC 42 (United States)	11-12
Preferred Numbers, ISO/TC 19 (France)	12-14
Shipbuilding Details for Sea Navigation, ISO/TC 8	16-19
Screw Threads, ISO/TC 1 and subcommittees or working groups (Sweden)	11-14
Textiles, ISO/TC 38, Subcommittees 1, 5, 6, and working groups (United Kingdom)	13-17
ISO Council	17-19
General Assembly	20-21

It is expected that a final decision on the meeting of the Cinematography and Photography committees will be made by January 15, 1952. The committee on Lac may shift its meeting to June 23, 24, and 25, in conjunction with the Fiftieth Anniversary Jubilee of the American Society for Testing Materials. Final decision on the proposed meeting of the committee on Shipbuilding Details for Sea Navigation, ISO/TC 8, is awaiting the results of a poll of American industry to determine whether there is sufficient interest to warrant holding the meeting in this country at this time.

Recent Rulings on Unusual Accidents

The following interpretations have been handed down by the Committee of Judges of ASA Sectional Committee Z16 on accident statistics. They serve as a guide to companies who want to know how to count injuries due to unusual accidents in their safety record.

The American Standard Method of Compiling Industrial Injury Rates, Z16.1-1945, offers generally accepted rules for keeping track of a company's safety record. Monthly compilation of a company's accident toll shows at a glance when some change in operations or some unforeseen new hazard has caused a jump in the injury rate. Immediate action then can be taken to eliminate the hazard.

Safety engineers are invited to obtain interpretations of the standard by sending the facts on doubtful cases to the American Standards Association. Reprints of all the published decisions can be obtained from ASA.

CASE 136. An inspector in an electrical manufacturing plant claimed that he struck his leg against a panelboard box. He continued to work and did not report his injury to the plant doctor until four days later. There were no witnesses to the accident. The employee was 58 years old and had been on the same job for 40 years. His past medical history showed very high blood pressure and varicose veins.

The doctor reported that there was a possibility of thrombosis with varicosities, as a result of the employee's striking the leg against the box. The employee was removed to a hospital for treatment and, due to his physical condition, lost a total of 120 days from work.

Since there was no neglect on the part of the employer and nothing fell against or struck the employee's leg, the company questioned whether this should be considered an industrial injury and, if so, what time charge should be used.

The committee decided that this case should be counted in the rates, with a time charge of 120 days. The committee believed that since there was no question about the facts of the accident, it was chargeable under 3.4.1 of the standard in that the injury aggravated a pre-existing condition.

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CASE 137. A company reported an injury as follows:

"An employee left his department as the lunch whistle blew and walked up the stairs to the cafeteria. The cafeteria is on company property but is operated and maintained by an outside caterer. As he was walking down the aisle between rows of tables toward the lunch line (food is served cafeteria style), he slipped on a pat of butter and fell, fracturing his left leg.

The company stated "We do not feel that this case should be charged as a lost time accident for the following reasons:

"1. The cafeteria is there for his convenience. He is not required or requested to eat in the cafeteria. Many of our employees eat their lunch at their work stations, walk outside and eat it on company property, or drive their cars to little restaurants in the vicinity of the plant. We certainly could not be held responsible for an accident happening to any of those people who go out of the plant to eat or who might even suffer an injury while out in the yard eating their lunch.

"2. The Shop Cafeteria, even though on our premises, is run by a caterer. The caterer has full charge of the cafeteria including his own clean-up squads which sweep and scrub the floors, wash down the walls, paint equipment in the kitchens, bus the dishes, clean the tables in the cafeteria, as well as serve the food. All we ask of the caterer is that he meet certain standards of cleanliness.

"We do not feel that it is our liability when an employee voluntarily uses a convenience which is placed there for his benefit but which is not maintained by us."

The committee decided that this case should not be counted in the industrial injury rates. In the discussion it was emphasized that in this particular case the cafeteria was operated as a concession and appeared to be fully independent of the manufacturing company.

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CASE 138. A public utility line crew regularly begins its work day at 8 A.M. The linemen report at company headquarters each morning and from there go in the line truck to the work site. As a rule, they reach headquarters a few minutes in advance of 8 o'clock and wait in the crew's locker room.

On the morning in question, at approximately 4 minutes before 8 o'clock, two of the employees began a playful scuffle. While so engaged one of the employees fell to the floor and fractured his elbow, which resulted in a lost time injury.

The company wanted to know if this injury should be included in the rates.

The committee decided that this case should be included in the rates, on the basis that 2.4 of the standard provides that injuries from horseplay should be included. The members believed that the fact that this employee had reported to work four minutes before the beginning of his shift was entirely reasonable and that he should be considered in the course of employment at the time of this injury.

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CASE 139. This case concerns a construction laborer who alleges that on January 4 he sustained frostbitten feet. He was only one of several hundreds laborers and swampers whose work required them to be out of doors more or less continuously each day regardless of season. Similarly, hundreds of other craft workers necessary to the construction work spend much of their work shift, or all of it, out of doors regardless of weather conditions. On the day of the alleged injury this laborer was in an outside crew as usual, wearing a pair of boots and two pair of socks beneath. Temperatures ranged from 2 to 13 degrees above zero at 12:30 noon. The injured man states that at the end of his shift he rode the company bus, which is heated, into the urban area. Then he rode with a friend in a private car about 12 miles to his home. Arriving home he removed his shoes and said he noticed his feet were darker in color than usual and were painful. He states that he did not treat his feet in any way except to put on clean, dry socks and another pair of shoes, and he alleges he stayed home all the balance of that evening. According to his story, he awoke late the morning following and then went back to bed as it was too late to catch his ride to work. Later in the afternoon, however, he got up and went to see an off-project physician who diagnosed his condition as frostbite. He was hospitalized for 4 days.

No other workers are known to have sustained frostbite during this period, or in more severe periods before and after January 4 when temperatures dropped to about 25 degrees below zero. Note also that labor foreman consistently admonished workers to dress properly for the weather and, in addition, provided warming shacks for the men. Foremen on this job are strictly governed by the rule that every injured worker is to be sent at once to first-aid for treatment.

It should be noted that the employee did not acquaint his foreman with the fact that his feet were becoming frosted, so the company was unable to judge accurately whether or not the frostbite occurred during the course of his employment.

The decisions on Case 34 would seem to apply to this case inasmuch as the employee was exposed to the same temperature as numbers of other workers, and it was known to all concerned that suitable work clothing and footgear were a necessity.

The committee decided that if this case occurred as alleged by the employee, in that he sustained frostbitten feet while at work, then this case should be included in the rates. The committee believed that 2.6 applies. The committee further stated that it was not in a position to determine the facts of the case and that such determination should be by the company itself. Questions that should be determined are: Whether or not this employee actually had frostbitten feet, and if so, whether or not the freezing of the employee's feet came during the course of his employment or whether this may have occurred during his 12-mile ride home after the end of his employment on this shift.

International Meetings

(*continued from page* 17)

are proven wrong," explained M. Earl Heard, vice-president in charge of research, West Point Manufacturing Company. Mr Heard was one of the delegates. Even in this country, he commented, "it takes eternal vigilance in connection with test methods and test machines to be certain that both the supplier and the purchaser are testing in exactly the same way on machines that have been calibrated periodically to certain standards."

With this attitude, the American delegation found that many of the differences in practices that had seemed wasteful and meaningless actually were based on sound economic or technical reasons from the viewpoint of the country following them. Other countries, for example, spend time instead of money to determine colorfastness by exposing textiles to the sun for a year or more because they cannot afford the expensive testing machines in common use in the U.S. For this reason, alternate test methods are being set up recognizing hand procedures requiring less expensive equipment than the Fadeometers, Launderometers, and Flat-bed presses in use in this country. Agreement by the committee on a standard for determination of colorfastness, however, will provide comparable test results regardless of the methods used.

The Bournemouth meetings lasted for six days and covered 20 technical subjects in 10 plenary sessions and numerous meetings of subcommittees and delegations. English and French were the official languages; formal discussions were translated from one to the other as required.

The scope of the committee's work covers textiles of all kinds, including fibers, yarns, threads, cords, and fabrics, as well as agents and auxiliary products required for processing and testing textiles.

The use of one direct, decimal, numbering system for all fibers, yarns, and cordage, based on the metric units, grams for weight, and meters for length, is to be encouraged in member countries. It is hoped that the system will gradually displace the many systems now used. Excellent progress was made in discussions of colorfastness tests, and 15 methods were approved for distribution in the form of first draft proposals.

"In view of the importance of international trade in textiles to nearly every branch of the U.S. industry, the delegation recommends continued and increasing participation of the U.S. in the efforts of ISO to provide clearly defined terminology and methods for use in international trade," declared W. D. Appel, Textile Section, National Bureau of Standards, leader of the U.S. delegation.

The ISO committee has accepted an invitation to meet in New York in June 1952. In preparation for this meeting, a number of draft proposals are being completed as rapidly as possible so they can be distributed to the member countries before the June meeting.

Schwarz, Whitcomb Receive Awards

In addition to the reports of the American delegation to the ISO/TC 38 committee meeting at Bournemouth, the October meeting of ASTM Committee D-13 featured presentation of the Harold DeWitt Smith Memorial Medal to Professor Edward R. Schwarz, head of the Textile Division, Massachusetts Institute of Technology. Professor Schwarz is credited with placing textile technology on an equal footing with other special divisions of the Mechanical Engineering Department. He has made outstanding contributions in research in textile microscopy, textile structural analysis and in mechanical and electronic instrumentation.

William Henry Whitcomb, secretary of Committee D-13, was honored at the meeting, when it was announced that the American Society for Testing Materials has conferred on him the ASTM Award of Merit. Mr Whitcomb has served as secretary of the committee for 21 years. Prior to that time he served as chairman for two years. "His efficient handling of the secretarial work, the editing of the textile standards, and stimulation of activities in the committee have brought to the committee and to the ASTM an outstanding reputation for technical achievement in the textile field," ASTM announced.

• • **Three American Standards** in the field of pipe flanges and fittings, just approved by the American Standards Association, are: American Standard Nonmetallic Gaskets for Pipe Flanges, B16.21-1951; American Standard Wrought Copper and Bronze Solder-Joint Fittings, B16.22-1951; and the American Standard Malleable-Iron Screwed Fittings, 150 Lb, B16.3-1951.

For the first time, nonmetallic gaskets can be manufactured and purchased according to American Standard sizes. These gaskets, used in almost every large industrial plant in the country, have always been manufactured according to individual specifications. Never before have manufacturer and purchaser had an authoritative set of standard sizes to guide them in producing and buying this equipment.

The new American Standard for Nonmetallic Gaskets for Pipe Flanges covers types and sizes; material; dimensions, and formulas for determining the diameters of gaskets for flanged joints having plain, raised, male, female, and tongue and groove facings. Selection of the proper gasket for the desired type of flange material, pressure rating, and variety of flange is facilitated by presentation in chart form. This chart also contains a reference column listing existing American Standards and standards adopted by the Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) for the various types of flanges covered in the new American Standard.

The wrought copper and bronze solder-joint fittings covered in American Standard B16.22-1951 are used throughout industry for low pressure and low temperature water pipes. This document applies to fittings made of wrought copper or wrought copper-alloy material having not less than 83 percent copper content. A table shows the pressure ratings for

solder used in joints of 50-50 tin-lead, 50-50 tin-antimony or 95-5 lead-tin, and solders melting at or above 1100 F. Dimensions of standard water tubes ranging in size from ⅛ to 4 inches are presented in tabular form. These dimensions cover the outside diameter and length of external connections, and the inside diameter and depth of internal connections, as well as the metal thickness and inside diameter of the fittings. Inspection tolerances on the major water tube dimensions and pipe thread sizes are given in a separate chart.

The new American Standard Malleable-Iron Screwed Fittings is a revision of the 1939 edition (B16c-1939). The standard was revised to include inspection tolerances on fitting dimensions, an amplified section on threading, and additional sizes in tables covering elbows and crosses (reducing sizes), tees (reducing sizes), couplings (straight and reducing sizes), caps, and return bends.

The 1951 edition gives dimensions of 90-degree elbows, tees, crosses, and 45-degree elbows (straight sizes); 90-degree elbows and crosses (reducing sizes); tees reducing sizes); 45-degree Y-branches (straight sizes); service or street tees and 90-degree and 45-degree elbows (straight sizes); couplings (straight and reducing sizes); caps; and close, medium, and open pattern return bends. This standard is a companion document to the recently approved American Standard Malleable-Iron Screwed Fittings, 300 Lb, B16.19-1951.

A committee organized under ASA procedure and jointly sponsored by the American Society of Mechanical Engineers, the Manufacturers Standardization Society of the Valve and Fittings Industry, and the Heating, Piping, and Air Conditioning Contractors National Association developed these three standards.

• • **Curtis W. Pierce,** member of the Board of Directors of the American Standards Association from January 1947 to December 1949, died November 15. Mr Pierce had retired in July as president of the Factory Insurance Association. He was nominated for ASA's Board by the Fire Protection Group. He served as chairman of the Survey Committee which analyzed ASA organization and operations.

• • **Navy work** on research and development in the field of acoustics-in-air will be reported in the terms and definitions given in the American Standard Acoustical Terminology, Z24.1-1951. In a bureau directive with wide circulation, it is strongly recommended that the standard terms be used, particularly in the writing of specifications "to insure a common language within the services and between the services and commercial and academic activities in this field."

Book Reviews

Management of Industrial Inventory. By Benjamin Melnitsky. (John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. $4.25).

(Reviewed by V. deP. Goubeau, Radio Corporation of America, RCA Victor Division)

Stressing the importance of inventory management, Mr. Melnitsky mentions procedures of various companies rather than telling the reader how to control inventories. The book contains much excellent meat and is impressive for its thought-provoking subject matter. Industry generally has much to learn about the science of inventory control, the importance of which has only been realized fully by industrial management in recent years. This book should be reviewed by all manufacturing organizations.

Standardization plays a most important part in inventory management. As Mr. Melnitsky well points out, the amount of money tied up in inventory can be very seriously affected by lack of standardization: by the same token, good progress in standardization almost always results in a lower inventory without affecting availability for production. Standardization simplifies the problem of inventory control. Savings accrue not only in avoidance of obsolescence, but space and personnel also are directly affected when proper attention is given to standardization.

I recommend Mr. Melnitsky's book to anyone having any interest in materials, whether from the standpoint of design, procurement, or inventory control.

The Grinding Wheel. By Kenneth B. Lewis. (Prepared under the auspices of the Grinding Wheel Institute, Greendale, Mass. $3.50)

"We like to think of this book as of the nature of an encyclopedia," say the authors of the Foreword to this textbook of modern grinding practice. The book has been prepared with the idea that it will give the reader a solid grounding in the fundamentals of abrasive technology. Its 28 chapters cover the subject from the early history of grinding and abrasive materials and how the wheel developed, to factors affecting wheel selection, different methods and problems of grinding, and costs involved. In covering this wide range, respects are paid to various American Standards in the field. The American Standard on Surface Roughness, Waviness, and Lay, B46.1-1947, is discussed in the chapter on "Evaluation of Surface Quality." The American Standard Safety Code is referred to in relation to wheel speeds. American Standard terminology for drills and other tools is mentioned. Of the six appendices one provides a table of recommendations on the abrasive, grain size, grade, and bond to use for different types of work, materials, and operations. Another discusses causes and correction of common grinding errors. A discussion to help understand and interpret the American Standard Safety Code is presented in a third appendix. The American Standard Markings for Identifying Grinding Wheels and Other Bonded Abrasives, a glossary of grinding terms, and a list of books and pamphlets on grinding wheel operations make up the other three appendices.

Production Forecasting, Planning, and Control. By E. H. MacNiece. (John Wiley & Sons, Inc. 440 Fourth Avenue, New York 16, N. Y. $5.50)

"The work of management ranges over the whole field of economic enterprise," explains Robert Wood Johnson in his introduction. "In this work, Mr. MacNiece sets forth the principles and outlines the practice of production management in industry, a field with which he has had close contact and in which he has won distinction."

"Forecasting, planning, and control are complex and highly technical functions," Mr Johnson points out. "In large companies, they require the skills of many men in several departments. Mr MacNiece discusses the relationships between these men and their need for tolerance and understanding."

The 23 chapters cover such subjects as manufacturing planning; factory planning; sales forecasting; procurement; scheduling production; cooperation with quality control; solving forecasting, planning, and control problems; and war production forecasting, planning, and control.

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